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ABSTRACT

A study at Sultan Qaboos University in Oman investigated the listening comprehension problems of students who were non-native speakers of English (NNS), in lectures by native English-speaking professors. Two professors with no previous experience in teaching non-native speakers introduced geology in 4 weeks of lectures. Instances of vocabulary elaboration in the lectures were analyzed, including all uses of special terminology or expressions that the teachers in some way qualified, explained, questioned, repeated, paraphrased, or expanded on; analogies were included. For each elaboration, occurrence of these features was recorded: type and complexity of elaboration; discourse markers; speed and stress; overt signals of importance; type of explanation; and technicality of terms used. This information was analyzed for patterns of teacher language use and individual differences between teachers. Some elaborations were very complex, with further elaborations embedded in them. Student notes on one topic were then examined for insight into the lecturer's method of explaining and the way students recorded the information. Results indicate students were unaware of many lecturer cues signaling key base words, and had difficulty extracting them from the ongoing discourse. Notes showed poor organization. Suggestions are made for improving NNS students' listening and note-taking skills. (MSE)

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LISTENING AND NOTE-TAKING IN HIGHER EDUCATION

JANE JACKSON FAHMY AND LINDA BILTON

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LISTENING AND NOTE-TAKING IN HIGHER EDUCATION

Jane Jackson Fahmy and Linda Bilton

Why should EAP instructors take an interest in research about lecturing? *Most* information is still conveyed to university students through lectures. This teaching method requires sophisticated listening and note-taking skills and poses additional difficulties for non-native students. Therefore, research is needed to identify those areas which might be amenable to improvement through teaching. This paper briefly reviews research on lectures and describes a linguistic study undertaken at Sultan Qaboos University in the Sultanate of Oman, which has implications for EAP methodology.

LITERATURE REVIEW

Most research on the lecture method has been undertaken in a native-speaker context. Bligh (1972, 1980) and Beard and Hartley (1984) have examined the ways information is presented in lectures and recommendations for improving students' study skills have been made by Gibbs (1981) and Brown (1979). Only a small number of researchers have considered the special problems of foreign students in understanding lectures given in English.

Wijasuriya (1971) analyzed forty-six taped lectures in a variety of disciplines and suggested that logical connectors and discourse markers were an important but neglected aspect of "classroom" language. He recommended that these features be included in listening comprehension exercises for foreign students.

Holes (1972) investigated the English language problems of overseas post-graduate students at the University of Birmingham. He found that many students' problems were caused by their being unaware of culture-bound knowledge, by their inability to interpret either the speaker's intonation or stress, and their ignorance of colloquial expressions and changes of register. He pointed out that speech has a lower level of redundancy for the foreign listener than for the native.

At the University of Newcastle-upon-Tyne, Morrison (1974) set out to determine and rate the listening comprehension problems that overseas post-graduate students encountered in Science courses. By means of questionnaires he identified the following linguistic features (in order of difficulty):

1. the referential system (anaphora, cataphora, etc; transition markers and logical connectors)
2. . lexis (especially idiom and nominalized groups)
3. phonology.

Both Holes (1972) and Morrison (1974) stress the need for EAP courses to be based on a descriptive analysis of spoken discourse. In line with this recommendation, a study of the linguistic features of lectures has begun at SQU with the aim of providing pedagogical guidelines for EAP materials writers and instructors. The first area of inquiry has focussed on lexis and addressed the following research questions:

1. What are the dominant means used by lecturers to explain and elaborate vocabulary?
2. Is there a relationship between the lecturer's method of explaining and the way the students record information?

SQU STUDY

BACKGROUND TO STUDY

While previous studies have dealt with foreign students in Britain attending lectures alongside British students, the SQU study involves native-speaker professors lecturing to groups of non-native speakers. This situation is becoming common as more institutions of higher education are opened in developing countries to meet the demand for science and technology.

Sultan Qaboos University, Oman's first university, opened in 1986 - a major achievement since formal education did not begin in the Sultanate until 1970. The overall English language proficiency of students entering the institution is low. To upgrade their English and develop their study skills, the first two semesters are devoted to a foundation course which is comprised of fourteen hours per week of English language tuition and six hours of Science.

SUBJECTS

Two British geologists, who had no previous experience of teaching NNS, lectured to students in the Science Foundation Course.

METHOD

Both professors introduced Geology in a series of fifty minute lectures spanning four weeks. They presented the same material to three separate groups of twenty-five freshmen in regular classrooms. The first and last lectures of each topic were audiotaped for both lecturers and forty were transcribed, noting such prosodic features as intonation, stress, rate of speech, pause and nonverbal features (eg writing). This type of transcription permitted a functional analysis of the discourse of explanations.

Following Chaudron's work on vocabulary elaboration (1979, 1982, 1988) the material selected for our analysis included "all instances of the use of special terminology or expressions that the teachers in some way qualified, explained, questioned, repeated, paraphrased, or expanded on" (1979, p. 5). Analogies were also considered in this regard.

In order to discover the most frequent means by which lecturers explained and elaborated vocabulary, it was necessary to devise a quantifiable unit of analysis which we have termed an ***elaboration***. It consists of a base word or phrase followed by one or more reformulations.

In our coding scheme, all base words are coded as A and subsequent reformulations as B, C, and so on. The following excerpts illustrate typical elaboration patterns. *The base words are in italics* and **reformulations in bold face**.

(i) AB Pattern: a simple elaboration with a base word followed by one reformulation:
We can see that quartz is sometimes ... completely *colourless* ... you can see here ... **has no colour**
Here is a rock which is composed *entirely* **completely** of ooliths

(ii) ABC Pattern: a base word followed by two reformulations:
Some of the beds have ***clasts*** . **stones or what we call pebbles**
biological or organic precipitation . that is **with the help of animals and plants**

(iii) AAB Pattern: a base word followed by a repetition and then a reformulation:
This mineral ***effervesces*** ok it ***effervesces*** ... it bubbles with HCl and that's quite a useful word
You know ***crystallization*** .. ***crystallization*** is the formation of crystals.

Some examples involved up to seven reformulations, often with other elaborations embedded, making the explanation very difficult to follow. Such instances we have termed ***verbal mazes***. In the following excerpt Lecturer B attempts to explain "conglomerates" and in the process elaborates on two more terms

"bonded together" and "finer sediments" and also gives an analogy far removed from the scientific context.

> ***Conglomerates*** . rocks in which pebbles are rounded . and they're ***bonded together*** held together . by ***finer sediments*** or by cement the - same word as for cement that we use for building . uh it just means sticking together .. so a variety of different minerals . can act to hold together . there are - some of this is cemented by iron compounds .. so ***conglomerate*** roundy rounded pebbles . held together . all all ***conglomerate*** means is a bringing together . uh . you can also have - if you have a number of companies in business . that join together . then they are also called a ***conglomerate*** . so ***conglomerate*** just means . many different things together (Lecturer B).

For each elaboration a check-list was devised to record information about such features as:

1. type and complexity of pattern
2. discourse markers
3. speed and stress
4. overt signals of importance
5. type of explanation
6. technicality of terms used.

The data were then analyzed by computer using the Statistical Package for the Social Sciences (SPSSX). Frequency counts and cross-tabulations of variables were performed to determine significant associations.

RESULT

(a) Type-Token Ratio

Language variety was measured by taking a type-token ratio of twenty lectures - ten by Lecturer A and ten by Lecturer B. All incomplete words, spellings and single letters, such as chemical symbols, were omitted and a variety of fillers ("ah, oh, er") was reduced to one type. Comparison of the type-token ratio between the two lecturers revealed a stylistic difference in the amount of vocabulary used in that Lecturer A employed more than B (Table 1). A difference was also noted in the amount both lecturers used in the first and last lectures of each series, with Lecturer A slightly increasing his vocabulary in the last lecture whilst Lecturer B did the reverse.

Table 1

Type/Token Ratios (20 Lectures)
(Lecturer by Position)

	first lectures (10)	third lectures (10)	Row Avg.
Lecturer A	6.08	6.47	6.28
Lecturer B	4.95	4.35	4.65
Column total	11.03	10.82	10.93
Type/Token Ratios	5.52	5.41	5.47

(b) Type of Elaborations

Out of the 921 elaborations identified in the twenty lectures, 429 were used by Lecturer A and 492 by Lecturer B. This fairly even distribution probably reflects the uniform content of the lectures.

The most frequently used elaborations are portrayed in Table 2. The dominant type of pattern was the simple elaboration AB. The next most common one was the verbal maze which included as many as seven reformulations and contained many repetitions of either the base and/or its reformulation.

Approximately 80% of the patterns were simple; that is, without a second elaboration being embedded, but of the 20% that were complex, not surprisingly, half of them were verbal mazes. These were almost equally distributed between the two lecturers and also between the first and third lectures. One might have expected the language of explanation to have been more controlled by the final lecture of each series.

An examination of the constituents of the elaboration patterns revealed that 60% of bases and 50% of first reformulations were either nouns or noun phrases. This may be due to the predominance of scientific terminology in the lectures. Grammatical parallelism (noted by Chaudron, 1979), was strongest between the base and its first reformulation; thereafter greater grammatical variety was evident. As one might expect, phrases were more common in the reformulations as the lecturer expanded on the base word.

Table 2

Patterns of Elaboration

	Frequency	Percent
ab	407	44.2
verbal maze	219	23.8
abc	77	8.4
aab	51	5.5
aba	34	3.7
abb	19	2.1
misc	114	12.4
Total	921	100

(c) Entry

In most cases (64.2%), both lecturers began their elaborations directly (Table 3). It is of pedagogical importance that only a very small number of elaborations were initiated by questions from students. A cross-tabulation of lecturer by mode of entry revealed that Lecturer B was twice as likely as A to introduce the elaboration with a comprehension check. Another stylistic variation was that Lecturer A used three and a half times more discourse markers as entry signals than did B. As detailed in Table 4, the ones most frequently employed were "pause", "so", "now", and "and".

Table 3

Cross-Tabulation of Mode of Entry by Lecturer

Mode of Entry	Count / Row Pct.	Lecturer A	Lecturer B	Row Total
	direct	239 40.4%	352 59.6%	591 (64.2%)
	discourse marker	142 78.0%	40 21.9%	182 (19.8%)
	comprehension check	37 32.5%	77 67.5%	114 (12.4%)
	student query	11 32.4%	23 67.7%	34 (3.7%)
	Column Total	429 46.6%	492 53.4%	921 100%

Table 4

Cross-Tabulation of Entry Signals by Lecturer

Entry Signals	Count Row Pct.	Lecturer A	Lecturer B	Row Total
↓	pause	58 74.4%	20 25.6%	78 (39.2%)
	so	26 78.8%	7 21.2%	33 (16.7%)
	now	26 96.3%	1 3.7%	27 (13.6%)
	and	19 95.0%	1 5.0%	20 (10.1%)
	slower speech	11 78.6%	3 21.4%	14 (7.0%)
	misc.	15 55.6%	12 44.4%	27 (13.6%)
	Column Total	155 77.9%	44 22.1%	199 100%

(d) Connectors

Nearly half of all elaborations contained one or more sentence connectors. The most common ones were "so" (33.1%), "or" (25.7%), "and" (16.6%), and "ok" (14.5%) (Table 5). "So" featured in all patterns. "Or" was used most commonly where there was only one reformulation, such as in the AB pattern; but in complex patterns "and" was the favoured connector.

Table 5

Cross-Tabulation of Connectors by Lecturer

Connectors Count / Row Pct.	Lecturer A	Lecturer B	Row Total
so	110 64.3%	61 35.7%	171 (33.1%)
or	65 48.9%	68 51.1%	133 (25.7%)
and	44 51.2%	42 48.8%	86 (16.6%)
ok	73 97.3%	2 2.7%	75 (14.5%)
now	17 85.0%	3 15.0%	20 (3.2%)
misc.	17 53.1%	15 46.9%	32 (6.2%)
Column Total	326 63.1%	191 36.9%	517 100%

Besides using more discourse markers as entry signals, Lecturer A employed a greater variety of sentence connectors. For example, some of his explanations were linked by such explicit phrases as "another word is", "we call them", "which means", and "in other words".

(c) Exit

Fifty two percent of all elaborations concluded with a discourse marker as a special signal, two and a half times more than were used on entry (Table 6). Of the two lecturers, A used almost 20% more than B, who preferred to continue as if the elaboration was a parenthesis or simply exited directly. Only 6.8% ended with a comprehension check by the lecturers. None of these solicited information from the students to confirm that they had understood, rather they served more as discourse markers to signal the end of a topic.

Table 6

Cross-Tabulation of Mode of Exit by Lecturer

Mode of Exit	Count / Row Pct.	Lecturer A	Lecturer B	Row Total
	discourse markers	280 58.5%	199 41.5%	479 (52.0%)
	parenthesis	67 37.2%	113 62.8%	180 (19.5%)
	direct	58 34.3%	111 65.7%	169 (18.3%)
	comprehension check	6 9.5%	57 90.5%	63 (6.8%)
	student query	18 78.6%	12 21.4%	30 (3.3%)
	Column Total	429 46.6%	492 53.4%	921 100%

The results of a cross-tabulation of exit signals (discourse markers) by lecturer are shown in Table 7. They reveal that both lecturers tended to pause at the end of an elaboration (45.4% of cases). The most frequently verbalized discourse markers were "so" (12.7%), "and" (10.1%) and "ok" (7%). Lecturer A was almost four times more likely to employ "so" than his colleague and five times more likely to use "and" as exit signals.

Table 7

Cross-Tabulation of Exit Signals by Lecturer

Exit Signals	Count / Row Pct.	Lecturer A	Lecturer B	Row Total
↓	pause	115 46.6%	132 53.4%	247 (45.4%)
	so	54 78.3%	15 21.7%	69 (12.7%)
	and	46 83.6%	9 16.4%	55 (10.1%)
	ok	28 73.7%	10 26.3%	38 (7.0%)
	faster following	12 37.5%	20 62.5%	32 (5.9%)
	misc.	52 51.0%	50 49.0%	102 (1.9%)
	Column Total	307 56.5%	236 43.5%	543 100%

(f) Stress and Speed

Studies by Henzl (1973), Wesche and Ready (1985) and Mannon (1986) have suggested that native speakers speak louder and more slowly to emphasize lexis when addressing non-native speakers. However, this study does not reveal any systematic use of stress or speed for this purpose.

In more than half of the elaborations, the entry was not stressed, which was quite unexpected. In 62.2% of the cases there was no stress on exit either. The reformulations were emphasized slightly more than the base only in the case of Lecturer B.

In just under 40% of the elaborations there was no change in tempo. Further analysis revealed no systematic use of tempo by either lecturer.

(g) Importance Signals

Only 8.3% of the elaborations were accompanied by verbal markers of importance, such as "you'd better commit this to memory". However, 46.5% of the time, the lecturers either wrote on the board or referred to the students' handouts, thereby underlining the importance of the verbal message. The amount of writing accompanying the elaborations did not change between the first and third lectures, perhaps again due to the controlled syllabus. A cross-tabulation of lecturer by writing showed that Lecturer A used 20% more writing than did his colleague.

(h) Technicality of Vocabulary

Of all the elaborations, 55.8% (514) of base words were technical, 33.6% (309) non-technical and 10.6% (98) semi-technical. In this study, a semi-technical term is an everyday word which has a specific application in the scientific context. In the following example, hardness would be defined as a semi-technical term. "The property of ***hardness*** is a measure of the resistance of a mineral to scratching".

Fourty five point eight percent (422) of the first reformulations were also technical, 45.9% (423) non-technical and only 8.3% (76) semi-technical. This shows that the incidence of non-technical terms increased from the base word to the first reformulation by 12.3%. An even larger reduction of technical vocabulary in the reformulation might have been expected, but an investigation of this variable by lecturer revealed that Lecturer A tended to stay technical throughout an elaboration whereas Lecturer B introduced more non-technical vocabulary as his elaboration proceeded. In summary, both lecturers tended to start with a

technical base but Lecturer B switched more readily to a non-technical register.

It was observed that if the base was technical the lecturers tended to use more than one reformulation as shown in the following example where Lecturer A makes three attempts to explain the term saturated

> does anyone know the term it's *saturated* .. well it means basically that the sea water cannot dissolve any more salt it is full uh there's no more room for it- it won't dissolve any more -- it's *saturated* it is full of salt (Lecturer A).

Both professors spent more time explaining the technical vocabulary to ensure that the students understood the basic concepts of Geology, whereas the non-technical vocabulary was less important to them.

(i) Definitions

Half the elaborations in the corpus are some form of definition, accomplished by such structures as "that is called", "this/x means", "we define/describe as", "x/this is ... a (kind/type of)..". For example:

(a) *Minerals that have a glassy lustre* we describe as being vitreous
(b) *Diagnostic* - it means that it is helpful in identifying
(c) *Lustre* is the property of the mineral to reflect light.

Seventy five percent of all these definitions began with the term that was defined, as in Examples (b) and (c) above. Inversion of the term defined and its definition (Example (a)) occurred in only 25% of the cases.

Sixty three point one percent of all definitions were accompanied by writing on the board or reference to the lecture handout. This provided some technical definitions which the lecturers expanded on. Seventy point two percent of all definitions were of a technical nature. A cross-tabulation of definition type by lecturer revealed that Lecturer A employed two-thirds of all the technical definitions. Not surprisingly, the majority of the technical definitions (78.7%) involved some writing or a reference to the handout.

Of significance was the small number (5.9%) of definitions actually arising from students' questions. Comprehension checks by the lecturer introduced almost a quarter of all the definitions, far more than for elaborations in general. The lecturers asked a similar number of questions about non-technical and technical terms. This may reflect their awareness of the limited vocabulary of their students.

(j) Analogies

A pedagogically interesting form of elaboration is the analogy, which can sometimes make a concept easier to understand. For example, Lecturer A explained the term "symmetry" by referring to a face and a mirror. At other times an analogy served to enliven the lecture and establish rapport with the audience.

In the following excerpt the lecturer tries to explain the scientific term "preservation" by means of story-telling as he takes students back in geological time and involves them in the discovery of a fossil. He also shares a joke with them and further personalizes the discourse through the pronoun "you".

> A few people who were working up there .. a few tens of years ago.. 1930's discovered that there were some mammoths beautifully preserved . in ice in the glacier ok.. and . the way they figured this had been - this had happened was that there was this mammoth walking along . a big ear two tusks walking along. it fell into a crack in the ice... and it was frozen beautifully preserved.. and the scientists were told about this by some locals who were working up there and when the scientists arrived and saw this mammoth .. they were a little bit too late because of the- locals had eaten half of the mammoth . because the meat was still fresh it was just like putting a chicken into your freezer .. and being deep frozen .. they must have had mammoth steak for supper (laugher) .. and the scientists . had a look at the uh - the structure and it's now refrigerated still .. in some uh the deep - uh they dry they freeze-dried it you know like coffee it's been dried by being a - a frozen all the water was removed. and you know you may have heard of people who a - a want to a - have eternal life and when they die they ask for themselves to be frozen so that if in the future there is a - a cure for their - a - their disease they will be unfrozen and a ... themselves and their wives will be united again (Lecturer A).

In moving from a scientific term to an everyday one, problems in communication can arise from the different backgrounds of lecturer and audience. For example, the lecturer's references to the freeze-drying process and freezing for the afterlife may be lost on Omani students. What is part of the lecturer's day-to-day living may not always be shared by his audience. In other lectures Omani students may have been further baffled by the lecturers' references to "skyscrapers", "hi-fi", "bubble-gum", "treacle", "molasses", "tax", "crown", and "a business conglomerate". There are dangers with this type of elaboration: what is intended to clarify may, in fact, mystify and moreover attention may be directed away from the original concept as in the following example. Lecturer B moves from the scientific realm to what he supposes to be the common everyday one

but, in fact, goes beyond his audience's experience and then fails to return to the original context.

> net means . the product . of a number of processes . uh the - if you - if you take the upslope movement away from the downslope movement . then- there is . a net . movement downslope because there is more movement downslope than up do you have uh do you have income tax here in Oman d'you - if you - if your uh parents earn money do they have to pay some to the government
> S: no no
> if - if there was income tax here . let's say you earn 1,000 - let's say you earn a 1,000 rials a day .. ok . any you have to pay 200 rials of that in tax . then your net salary would be 800 . that's what net means (Lecturer B).

In these Geology lectures, analogies tended to move from formal scientific discourse to a colloquial register, which was full of idioms, witticisms, vagueness terms (eg lots of, sort of, etc) and shifting pronoun reference. Such features would have been unfamiliar to many of the students whose exposure to English has been restricted to a formal classroom setting. Thus, comprehension may be impaired by semantic and cultural biases which are not shared by the lecturer and his audience. At times, both parties may suppose that effective and accurate communication is taking place when each is actually giving a different meaning to the message. Further barriers to communication are discussed in the following summary of the key findings of the discourse analysis.

SUMMARY OF RESULTS

The most frequently used type of elaboration was the simple AB pattern, with a base word followed by one reformulation. At first glance this would seem to facilitate comprehension. However, ambiguities can occur with co-ordination and apposition, where students may have difficulties distinguishing between new information and alternative terms. For instance, in the following example, it may not have been clear that the lecturer was using two terms for the same thing.

> *Detrital* or clastic sediments are produced by physical sedimentation

For NNS who have not been alerted to the use of grammatical parallelism in elaborations, synonyms may be decoded as additional items of information as in:

> The mineral has a *vitreous* glassy lustre

The second most common pattern in the corpus was the verbal maze with its complex arrangement of elaborations. Assigning the proper connections between the elements and retaining this information all the way through the verbal maze is an impossible challenge for many overseas students.

With most elaborations there was no explicit phonological or verbal marking, so students would not be expecting this teaching strategy and would likely not be prepared to note the explanations that followed.

Of special interest to EAP instructors is the fact that stylistic differences between the lecturers were found in almost all the areas examined, including: the amount and variety of vocabulary, the number of technical terms and definitions, and the use of discourse markers and explicit signals of importance. Such stylistic variations will be accentuated with lecturers from widely different backgrounds, as is the case in most universities today.

All these factors taken together would tax the listening skills of even the most proficient students.

STUDENTS' NOTES

METHOD

The relationship between the lecturers' method of explaining and the way the students recorded information was investigated by means of a detailed examination of notes on one topic. "Sedimentary Rocks" was selected as it was the only one that spanned two class periods and therefore provided more material for analysis. All of the elaborations were listed and the ones employed in both the first and last lectures were noted for each lecturer. These short lists of base words were thought to represent the key terms on Sedimentary Rocks as the lecturer felt it necessary to explain them on both occasions. This list was used to provide a measure of the completeness and accuracy of the Ss notes. In addition, the notes were examined for organization (hierarchy, sub-headings, numbering), clarity and succinctness.

RESULTS

In "Sedimentary Rocks" (Parts I and II), 186 elaborations were used by Lecturer A and 232 by his colleague. In the introductory lecture (Part I), Lecturer A increased his number of elaborations from 38 in his first session to 50 in the last; whereas Lecturer B decreased his from 71 to 50. No such variation occurred in Part II.

A listing of the key words (Parts I and II) showed that less than 10.0% of all

basewords were repeated in the lecturers' parallel lectures, eighteen of Lecturer A's and 23 of B's.

Most of Lecturer A's key words and two-thirds of Lecturer B's words were written on the board or referred to in the Ss handout. Lecturer A verbally signalled the importance of two-fifths of his terms, while his colleague did so in only a few cases. An interesting observation was the fact that key words were explicitly signalled much more frequently than were the base words that were not repeated in subsequent lectures.

All of Lecturer A's and almost all of Lecturer B's terms were technical or semi-technical. This supports the earlier findings that the non-technical vocabulary played a subordinate role, occurring as spontaneous discourse, whereas technical vocabulary formed part of the syllabus.

(a) Handouts

An examination of the Ss' notes revealed that 63.8% made independent notes in English, while 36.2% simply wrote on their handouts. Of the latter category, 17.2% used English and Arabic, 12.1% Arabic, and 6.9% English only. On the handouts, the majority of annotations were simply glosses of individuals words and in most cases no attempt was made to add information such as examples detailed by the lecturer. Whereas some students recorded the lecturers' reformulations, others wrote down what they thought the translation was. These students did not make full use of the lecture to improve their level of English and may also have mistranslated, resulting in an inaccurate record. In a few instances, some even placed the elaboration next to the wrong base word.

On their handouts, Lecturer A's students recorded 16.1% of the explanations of the key base words, whereas a mere 2.9% were noted by Lecturer B's. It is possible that since Lecturer A verbally signalled the importance of many of the terms, his students recorded more of them.

Effective use of underlining, numbering, and highlighting was evident in 61.9% of the cases where Ss used only handouts, but only 19.0% copied down diagrams or illustrations. A positive observation was that the majority of handouts were neatly annotated.

(b) Independent Notes

When students took independent notes in English, it was found that, on average, they elaborated on far more key base words than did those who restricted themselves to handouts alone. Lecturer A's Ss recorded half and Lecturer B's just under one-third of the elaborations. Furthermore, almost all

students amplified their independent notes with examples and illustrations; hence, they had a more complete record of the lectures.

While three-quarters of the notes were accurate, 20% of them contained inaccuracies, mispellings that interfered with communication, or unfinished phrases, where the Ss had been unable to get down the full explanation.

Most of the Ss' notes were neat and legible and more than half well-organized. The Ss showed effective use of headings and subheadings, ordering of details, and distinguished between important and less important information by highlighting or underlining key points. However, a quarter of the students made notes that were very disorganized with no systematic arrangement of ideas. Some underlined indiscriminately and also had problems labelling diagrams, either omitting words or misplacing them. As much as one third of the students' notes included superfluous information and in the entire body of data, only one example of an abbreviation was found.

SUMMARY

In summary, note-taking is a highly complex activity which simultaneously involves listening, writing, and, to some degree, reading. Students must listen to the lecture, select and organize what they are going to record and perhaps modify what they have already written whilst attending to the constant flow of information.

Our analyses of both handouts and independent notes revealed that many students were not aware of the cues given by the lecturer to signal his key base words and had difficulty extracting them from the ongoing discourse. A few attempted to write down everything said. When students did try to record important points, they made no use of standard abbreviations or any form of shorthand and, thus, had difficulty limiting themselves to information-carrying words. In almost half of the cases where independent notes were made, layout was poor and relationships between items of information were not clearly indicated. As a result, students were left with an incomplete and misleading summary of the lecture.

Based on the findings of this study, some suggestions are made to promote a more effective technique of note-taking.

SUGGESTIONS TO IMPROVE LISTENING AND NOTE-TAKING SKILLS OF NNS

1. Materials for the Study Skills course should, whenever possible, be based on EAP instructors' observations of their students' lectures. Features of the

lecturer's delivery could be noted using a small number of items from a checklist which should include the lecturer's use of:

- logical connectors (eg, "but", "so", "and" etc)
- discourse markers of frames (eg, "right", "now", "ok", speed and stress) signals of importance (verbal and non-verbal)
- techniques of defining and explaining.

2. Students can be encouraged to recognize and take advantage of their lecturer's cues. For example an awareness of his signals of importance will alert students to the necessity of recording information and should result in more complete notes.
3. Students should be advised to eliminate from their notes such phrases as "There are many different kinds of", "in other words", and "..is defined as" so that they restrict themselves to information-carrying words. They should practice the removal of redundant items such as articles, the verb "to be", modal verbs, and unnecessary repetitions.
4. A list of standard abbreviations and symbols should be provided along with suggestions on how to devise one's own.
5. Students should be told:
   (a) when it is appropriate to interrupt a lecture
   (b) how to ask questions politely with correct intonation and stress
   (c) how to make requests (eg, "Please would you speak more slowly")
   (d) how to seek clarification when the lecturer uses anecdotes or elaborations and to ask whether the information is additional or alternative.
6. The advantages of taking independent notes and annotating their handouts in English should be stressed.
7. Extensive practice should be given in copying texts and diagrams from the board or OHTs.
8. The Study Skills course should start with guided notes, where possible based on the observed lectures, and gradually reduce the amount of support.
9. When making independent notes, Ss should be encouraged to use a wide margin and to leave plenty of space between their jottings during the lecture so that, if necessary, inserts can be made.
10. Students need to be shown how to organize these jottings so that the relationships of the various points of the lecture are clear. For example, instruction should be given in the use of underlining, numbering of points, subheadings and indentations so that after the lecture they are able to reconstruct the lecture in the form of an outline. Ss should be shown how to take advantage of arrows, decision trees, Venn diagrams, and flow charts to organize the information they extract from their notes.
11. A very useful classroom activity is proposed by Gibbs (1981). After a lecture, students, in pairs, examine each others' notes with a view to finding

out what strategies were employed. Then, in small groups, each student explains his/her partner's notes and the groups consider the characteristics of all notes, selecting those which are the most useful. This activity is intended to foster their awareness of the process of note-taking.

12. Students could use their notes to replay part of a lecture in small groups. This activity should draw their attention to the need for complete and well-organized notes.
13. If observation of lectures is not feasible, EAP instructors should at least exploit authentic lecture material, preferably videoed and close in subject matter and level to the lectures their students are attending.
14. Ideally, all listening comprehension and note-taking material for EAP courses should be based on analyses of authentic spoken discourse, as recommended by Holes (1972) and Morrison (1974), and echoed by Murphy and Candlin (1979).

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